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EXAMINER	
KUIPER, ERIC J	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/970,124	CRAFT ET AL.	
	Examiner	Art Unit	
	Eric Kuiper	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 October 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☒ Claim(s) *8,14 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-36 have been presented for examination.

Priority

2. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. [1] as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosures of the prior-filed applications, Application No. 09/067,544, now US-6,226,680, Application No. 09/141,713, now US-6,389,479, Application No. 09/384,792, now US-6,434,620, Application No. 09/416,925, now US-6,470,415, Application No. 09/439,603, now US-6,247,060, Application No. 09/464,283, now US-6,427,173, Application No. 09/514,425, now US-6,427,171, fail to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application.

Application No. 09/675,484, filed 09/29/2000, now US-6,807,581, is the first application to make reference to the iSCSI technology as found in claims 3, 9, 10, 16, 22, 24, 27, 31, 35 and 36, therefore, these claims and their respective dependent claims will only be given a priority

date of 09/29/2000. All other claims are subject to the priority benefits of Provisional Application No. 60/061,809, filed 10/14/1997.

Claim Objections

3. Claims 8, 14 and 15 are objected to because of the following informalities: Claim 14 refers to "the fast-path processing of (c)" and "slow-path processing in (e)." Claim 15 refers to "prior to the receiving of (b)." These appear to be references to indented portions of claim 8. For the purposes of examination, Examiner has assumed claim 8 to be constructed as follows:

8. A method, comprising:

(a) issuing a read request to a network storage device, the read request passing through a network to the network storage device;

(b) receiving on a network interface device a packet from the network storage device in response to the read request, the packet including data, the network interface device being coupled to a host computer by a bus, the host computer having a protocol stack for carrying out network layer and transport layer processing;

(c) performing fast-path processing on the packet such that the data is placed into a destination memory without the protocol stack of the host computer doing any network layer processing on the packet and without the protocol stack of the host computer doing any transport layer processing on the packet;

(d) receiving on the network interface device a subsequent packet from the network storage device in response to the read request, the subsequent packet including subsequent data; and

(e) performing slow-path processing on the subsequent packet such that the protocol stack of the host computer does network layer processing and transport layer processing on the subsequent packet.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Kapoor et al. (US 5,682,534, hereinafter Kapoor).

6. As per claim 1, Kapoor discloses a computer that receives a response to a solicited read command (e.g. remote procedure call), the solicited read command being of a session layer protocol (e.g. Kapoor, col. 1, lines 41-54; col. 2, lines 33-36; col. 6, lines 10-19), the computer comprising:

a host computer having a protocol stack and a destination memory, the protocol stack including a session layer portion, the session layer portion being for processing the session layer protocol (e.g. Kapoor, col. 1, lines 41-54; col. 2, lines 33-36; col. 6, lines 10-19); and

a network interface device coupled to the host computer, the network interface device performing fast-path processing on the response such that a data portion of the response is placed into the destination memory without the protocol stack of the host computer performing any network layer processing or any transport layer processing on the response (e.g. Kapoor, col. 2, lines 33-49; col. 6, lines 7-19; Fig. 2B).

7. As per claim 2, Kapoor discloses the computer of claim 1, wherein the host computer comprises a files system, wherein the network interface device performs some session layer processing associated with the placing of the data portion into the destination memory, and wherein once the data portion is present in the destination memory the host performs additional session layer processing by responding to the file system (e.g. Kapoor, col. 3, lines 43-65).

8. As per claim 5, Kapoor discloses the computer of claim 1, wherein the protocol stack of the host computer can process a second response to a second solicited read command of the session layer protocol, the protocol stack processing the second response such that the protocol stack performs both network layer processing and transport layer processing on the response (e.g. Kapoor, col. 5, lines 36-45).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 3, 22, 24, 27, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kapoor et al. (US 5,682,534, hereinafter Kapoor) in view of Van Meter et al. ("VISA: Netstation's Virtual Internet SCSI Adapter," hereinafter Van Meter).

12. As per claim 3, Kapoor teaches the computer of claim 1, but fails to teach wherein the session layer protocol is ISCSI.

However, in a similar art, Van Meter teaches the use of an Internet SCSI adapter, which uses a TCP interface to attach to a network system (e.g. Van Meter, Abstract, Pg. 71).

It would have been obvious to one skilled in the art at the time the invention was made to combine Van Meter with Kapoor because of the advantages of using an Internet SCSI protocol to connect a device over a network. Van Meter states this type of connection is advantageous because network-attached devices are shared more easily and reduce the server's workload. It allows clients to directly access the devices, without going through a server, which reduces latency and demands on its buses, memory and processors (e.g. Van Meter, Section 3.1 – Motivation, Pg. 72, 73). These advantages are beneficial in any computer network system.

13. As per claim 22, Kapoor teaches a computer adapted for receiving a response to a read request command (e.g. Kapoor, col. 1, lines 41-54), the computer comprising:

a host computer having a protocol stack and a destination memory (e.g. Kapoor, col. 1, lines 41-54; col. 2, lines 33-36; col. 6, lines 10-19); and

a network interface device coupled to the host computer, the network interface device receiving a first portion of the response to the read request command, the first portion being processed such that a data portion of the first portion is placed into the destination memory of the host computer with the protocol stack of the host computer doing substantially no network layer or transport layer processing (e.g. Kapoor, col. 2, lines 33-49; col. 6, lines 7-19; Fig. 2B), the network interface device receiving a second portion of the response to the read request command, the protocol stack of the host computer doing network layer and transport layer processing on the second portion (e.g. Kapoor, col. 5, lines 36-45).

Kapoor fails to teach the computer receiving a response to an ISCSI read request command; receiving a first portion of the response to the ISCSI read request command and receiving a second portion of the response to the ISCSI read request command.

However, in a similar art, Van Meter teaches the use of an Internet SCSI adapter, which uses a TCP interface to attach storage and other devices to a network system (e.g. Van Meter, Abstract, Pg. 71).

It would have been obvious to one skilled in the art at the time the invention was made to combine Van Meter with Kapoor for similar reasons as stated above in regards to claim 3.

14. As per claim 24, Kapoor and Van Meter teach the computer of claim 22, wherein the ISCSI read request command is passed from the host computer to the network interface device, the ISCSI read request command being accompanied by an indication of where the destination memory is located on the host computer (e.g. Kapoor, col. 10, lines 42-60; Van Meter, Abstract, Page 71).

15. As per claim 27, Kapoor and Van Meter teach the computer of claim 22, wherein the response to the ISCSI read request command is received onto the computer via a single cable, the computer also receiving other network communications over the single cable, the other network communications not being ISCSI communications (e.g. Van Meter, Section 2 – Netstation, Page 71 and 72).

16. As per claim 30, Kapoor and Van Meter teach the computer of claim 22, wherein an enclosure contains both the host computer and the network interface device (e.g. Van Meter, Section 2 – Netstation, Page 71 and 72).

17. As per claim 31, Kapoor teaches a computer adapted for receiving a response to a read request command (e.g. Kapoor, col. 1, lines 41-54), the computer comprising:

a host computer having a protocol stack and a destination memory (e.g. Kapoor, col. 1, lines 41-54; col. 2, lines 33-36; col. 6, lines 10-19); and

means, coupled to the host computer for fast-path processing a portion of the response to the read request command, the portion including data, the portion being fast-path processed such

that the data is placed into the destination memory on the host computer without the protocol stack of the host computer doing significant network layer or significant transport layer processing (e.g. Kapoor, col. 2, lines 33-49; col. 6, lines 7-19; Fig. 2B), the means also being for receiving a subsequent portion of the response to the read request command and for slow-path processing the subsequent portion such that the protocol stack of the host computer does network layer and transport layer processing on the subsequent portion (e.g. Kapoor, col. 5, lines 36-45).

Kapoor fails to teach a computer adapted for receiving a response to an ISCSI read request command; means for fast-path processing a portion of the response to the ISCSI read request command; means for slow-path processing a subsequent portion of the response to the ISCSI read request command.

However, in a similar art, Van Meter teaches the use of an Internet SCSI adapter, which uses a TCP interface to attach storage and other devices to a network system (e.g. Van Meter, Abstract, Pg. 71).

It would have been obvious to one skilled in the art at the time the invention was made to combine Van Meter with Kapoor for similar reasons as stated above in regards to claim 3.

18. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kapoor et al. (US 5,682,534, hereinafter Kapoor) in view of Jones et al. ("Methodology for Serializing Asynchronous Network Requests Over Multiple Paths," hereinafter Jones).

19. As per claim 4, Kapoor teaches the computer of claim 1, but fails to teach wherein the session layer protocol is SMB.

However, in a similar art, Jones teaches the use of the SMB protocol in establishing NetBIOS session level connections between clients and servers (e.g. Jones, Page 151, Paragraphs 4 and 5).

It would have been obvious to one skilled in the art at the time the invention was made to combine Jones with Kapoor because of the advantages of using the SMB protocol for network connections. Jones states that the use of the SMB protocol is advantageous because the "large block" or "raw" protocols it uses provide for more efficient request transfer between client and server by increasing the amount of data that can be transferred during each operation (e.g. Jones, Page 152, Paragraph 1). Jones also states another advantage of the SMB protocol being that the delivery of all data sent is guaranteed, no data will be lost or skipped without notification (e.g. Jones, Page 152, Paragraph 5). These are beneficial in any computer network system.

20. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kapoor et al. (US 5,682,534, hereinafter Kapoor) in view of Christenson (US 5,418,912, hereinafter Christenson).

21. As per claim 6, Kapoor teaches the computer of claim 1, but fails to teach wherein the response comprises a first packet and a second packet, the first packet including first data, and second packet including second data, wherein said data portion that is placed into the destination includes both the first data and the second data, and wherein the first data and the second data are placed into the destination together in a substantially contiguous manner.

However, in a similar art, Christenson teaches a session-level packet processing system, wherein a response is comprised of multiple packets, each containing data, the data being placed sequentially into a destination via the use of a FIFO queue and buffer (e.g. Christenson, col. 6, lines 20-52).

It would have been obvious to one skilled in the art at the time the invention was made to combine Christenson with Kapoor because of the advantages of sending requests and commands over a network in the form of multiple packets containing data. Christenson states that controlling packet transmission in a network can optimize network resources and result in a fair amount of access by each client session (e.g. Christenson, col. 3, lines 7-20). The optimization of network resources can greatly improve the speed and efficiency of a network, while allowing fair access provides each client a relatively equal amount of that speed and efficiency, which is beneficial in any computer network system.

22. As per claim 7, Kapoor teaches the computer of claim 1, but fails to teach wherein the response comprises a first packet and a second packet, the first packet including first data, and second packet including second data, wherein said data portion that is placed into the destination includes the first data and the second data, the first data being placed into the destination before the second packet is received onto the network interface device.

However, in a similar art, Christenson teaches a session-level packet processing system, wherein a response is comprised of multiple packets, each containing data, the data being placed sequentially into a destination via the use of a FIFO queue and buffer, which will place the first data prior to placing the second data (e.g. Christenson, col. 6, lines 20-52).

It would have been obvious to one skilled in the art at the time the invention was made to combine Christenson with Kapoor for similar reasons as stated above in regards to claim 6.

23. Claims 8 and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kapoor et al. (US 5,682,534, hereinafter Kapoor) in view of Eshel et al. (US 5,535,375, hereinafter Eshel).

24. As per claim 8, Kapoor teaches a method, comprising:

(a) issuing a read request, the read request passing through a network device (e.g. Kapoor, col. 1, lines 41-54; col. 2, lines 33-36; col. 3, lines 10-19);

(b) receiving on a network interface device a packet in response to the read request, the packet including data, the network interface being coupled to a host computer by a bus, the host computer having a protocol stack for carrying out network layer and transport layer processing (e.g. Kapoor, col. 1, lines 41-54; col. 2, lines 33-36; col. 3, lines 10-19);

(c) performing fast-path processing on the packet such that the data is placed into a destination memory without the protocol stack of the host computer doing any network layer processing on the packet and without the protocol stack of the host computer doing any transport layer processing on the packet (e.g. Kapoor, col. 2, lines 33-49; col. 6, lines 7-19; Fig. 2B);

(d) receiving on the network interface device a subsequent packet in response to the read request, the subsequent packet including subsequent data (e.g. Kapoor, col. 5, lines 36-45); and

(e) performing slow-path processing on the subsequent packet such that the protocol stack of the host computer does network layer processing and transport layer processing on the subsequent packet (e.g. Kapoor, col. 5, lines 36-45).

Kapoor fails to teach issuing a read request to a network storage device, the read request passing through a network to the network storage device; receiving on a network interface device a packet from the network storage device in response to the read request; receiving on the network interface device a subsequent packet from the network storage device in response to the read request.

However, in a similar art, Eshel teaches the use of network attached storage devices that are able to send and receive read and write commands over a network (e.g. Eshel, col. 4, lines 26-28; col. 8, lines 36-42).

It would have been obvious to one skilled in the art at the time the invention was made to combine Eshel with Kapoor because of the advantages of using a network storage device in a computer network system. It is well known in the art to use a network to access, control and manage a storage device. Network accessible storage is a feature of nearly every network server computer. Allowing users to access network attached storage devices is advantageous since data can be stored in one central location, which can be easily accessed by all network users. Network storage can be used for archiving and backup purposes, greatly increasing the reliability and availability of data on a computer network, which is beneficial in any computer network system.

25. As per claim 11, Kapoor and Eshel teach the method of claim 8, wherein the destination memory is part of the host computer (e.g. Kapoor, col. 6, lines 10-19).

26. As per claim 12, Kapoor and Eshel teach the method of claim 8, wherein the destination memory is part of a second host computer, the second host computer being coupled to a second network interface device, the data and subsequent data being sent from the network interface device to the second network interface device via a network connection (e.g. Eshel, col. 3, lines 10-15; col. 4, lines 18-23).

27. As per claim 13, Kapoor and Eshel teach the method of claim 8, wherein the network storage device comprises a controller and a disk drive (e.g. Eshel, col. 4, lines 26-28; col. 8, lines 36-42).

28. As per claim 14, Kapoor and Eshel teach the method of claim 8, wherein the packet and the subsequent packet are associated with a connection context (e.g. Kapoor, col. 6, lines 28-36), the method further comprising:

flushing the connection context from the network interface device to the host computer after the fast-path processing of (c) but prior to the performing of slow-path processing in (e) (e.g. Kapoor, col. 7, lines 66-67; col. 8, lines 42-60).

29. As per claim 15, Kapoor and Eshel teach the method of claim 8, wherein prior to the receiving of (b) a first packet is received on the network interface device, the first packet being

passed from the network interface device to the host computer, the host computer then passing to the network interface device an address of the destination memory (e.g. Kapoor, col. 10, lines 42-60).

30. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kapoor et al. (US 5,682,534, hereinafter Kapoor) in view of Eshel et al. (US 5,535,375, hereinafter Eshel) as applied to claim 8 above, and further in view of Van Meter et al. ("VISA: Netstation's Virtual Internet SCSI Adapter," hereinafter Van Meter).

31. As per claim 9, Kapoor and Eshel teach the method of claim 8, but fail to teach wherein the read request is in the form of a SCSI command, wherein the SCSI command is attached to a header in accordance with an ISCSI protocol.

However, in a similar art, Van Meter teaches the use of an Internet SCSI adapter, which uses a TCP interface to attach storage and other devices to a network system (e.g. Van Meter, Abstract, Pg. 71).

It would have been obvious to one skilled in the art at the time the invention was made to combine Van Meter with Kapoor because of the advantages of using an Internet SCSI protocol to connect a device over a network. Van Meter states this type of connection is advantageous because network-attached devices are shared more easily and reduce the server's workload. It allows clients to directly access the devices, without going through a server, which reduces latency and demands on its buses, memory and processors (e.g. Van Meter, Section 3.1 – Motivation, Pg. 72, 73). These advantages are beneficial in any computer network system.

32. As per claim 10, Kapoor and Eshel teach the method of claim 8, but fail to teach wherein the read request is an ISCSI read request.

However, in a similar art, Van Meter teaches the use of an Internet SCSI adapter, which uses a TCP interface to attach storage and other devices to a network system (e.g. Van Meter, Abstract, Pg. 71).

It would have been obvious to one skilled in the art at the time the invention was made to combine Van Meter with Kapoor for similar reasons as stated above in regards to claim 9.

33. Claims 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kapoor et al. (US 5,682,534, hereinafter Kapoor) in view of Eshel et al. (US 5,535,375, hereinafter Eshel) and in view of Van Meter et al. ("VISA: Netstation's Virtual Internet SCSI Adapter," hereinafter Van Meter) as applied to claims 8 and 10 above, and further in view of Johnson (US 6,591,310, hereinafter Johnson).

34. As per claim 16, Kapoor, Eshel and Van Meter teach the method of claim 8, wherein the read request is an ISCSI read request, but fail to teach wherein the bus is a PCI bus.

However, in a similar art, Johnson teaches a system for controlling the transmission of request replies that uses a PCI bus (e.g. Johnson, col. 13, lines 2-7).

It would have been obvious to one skilled in the art at the time the invention was made to combine Johnson with Kapoor, Eshel and Van Meter because of the benefits of using the well-known PCI bus. Johnson states that the PCI bus is commonly used to provide a high-speed data

path between the CPU and peripheral devices such as video, disk, network, etc. (e.g. Johnson, col. 13, lines 2-7). This is well known in the art and beneficial to any computer network system.

35. As per claim 17, Kapoor, Eshel and Van Meter teach the method of claim 10, but fail to teach the method further comprising: sending a command status message from the network interface device to the host computer the command status message being sent after said fast-path processing on the packet and prior to said receiving of the subsequent packet on the network interface device.

However, in a similar art, Johnson teaches a system for controlling transmission of request replies and command status messages being sent from the host device after various procedures have been accomplished (e.g. Johnson, col. 6, lines 57-67; col. 7, lines 1-10; col. 10, lines 9-16).

It would have been obvious to one skilled in the art at the time the invention was made to combine Johnson with Kapoor, Eshel and Van Meter because of the benefits of using a command status message when communicating over a computer network. Johnson states that the use of this type of command status reply messages can simplify processing and reduce overall system cost while increasing design flexibility and versatility (e.g. Johnson, col. 5, lines 46-67). These are benefits in any computer network system.

36. As per claim 18, Kapoor, Eshel, Van Meter and Johnson teach the method of claim 17, wherein the command status message includes an indication that the read request command was

sent from the network interface device (e.g. Johnson, col. 6, likes 57-67; col. 7, lines 1-10; col. 10, lines 45-67; Table in col. 11, lines 1-33).

37. As per claim 19, Kapoor, Eshel, Van Meter and Johnson teach the method of claim 17, wherein the command status message includes an indication that an error condition has occurred (e.g. Johnson, col. 6, likes 57-67; col. 7, lines 1-10; col. 10, lines 45-67; Table in col. 11, lines 1-33).

38. As per claim 20, Kapoor, Eshel, Van Meter and Johnson teach the method of claim 17, wherein the command status message identifies a portion of the destination memory (e.g. Johnson, col. 6, likes 57-67; col. 7, lines 1-10; col. 10, lines 45-67; Table in col. 11, lines 1-33).

39. As per claim 21, Kapoor, Eshel, Van Meter and Johnson teach the method of claim 17, wherein the command status message includes an identifier, the identifier being indicative of the read request (e.g. Johnson, col. 6, likes 57-67; col. 7, lines 1-10; col. 10, lines 45-67; Table in col. 11, lines 1-33).

40. Claims 23, 25, 26, 28, 29 and 32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kapoor et al. (US 5,682,534, hereinafter Kapoor) in view of Van Meter et al. ("VISA: Netstation's Virtual Internet SCSI Adapter," hereinafter Van Meter) as applied to claims 22 and 31 above, and further in view of Johnson (US 6,591,310, hereinafter Johnson).

41. As per claim 23, Kapoor and Van Meter teach the computer of claim 22, but fail to teach wherein the network interface device includes a DMA controller, the DMA controller writing the data portion of the first portion into the destination memory of the host computer.

However, in a similar art, Johnson teaches the use of a DMA controller to transfer data from one memory location to another memory location (e.g. Johnson, col. 14, lines 3-9).

It would have been obvious to one skilled in the art at the time the invention was made to combine Johnson with Kapoor and Van Meter because of the advantages of using a DMA controller for transferring and writing data. A DMA controller allows a transfer to be accomplished without the use of CPU resources. This leaves the CPU more available to conduct other processing which cannot be performed by other devices or controllers. The use of a separate DMA controller can therefore increase the speed and efficiency of the entire network, since less processing needs to be handled on the already burdened CPU. This is advantageous in any computer network system.

42. As per claim 25, Kapoor, Van Meter and Johnson teach the computer of claim 24, wherein the indication includes a scatter-gather list (e.g. Johnson, col. 1, lines 65-67; col. 2, lines 1-4; col. 18, lines 21-24).

43. As per claim 26, Kapoor, Van Meter and Johnson teach the computer of claim 24, wherein an indication of where the destination memory is located on the host computer is passed from the host computer to the network interface device, the indication being passed to the

network interface device before the first portion of the response is received onto the network interface device (e.g. Johnson, col. 6, lines 57-67; col. 7, lines 1-10; col. 10, lines 9-16).

44. As per claim 28, Kapoor and Van Meter teach the computer of claim 22, but fail to teach wherein the host computer does exception handling as a consequence of the computer having received the second portion of the response.

However, in a similar art, Johnson teaches a network system with methods of correcting and notifying a network user of errors and exceptions which occurred in the processing of replies (e.g. Johnson, col. 14, lines 16-22, 36-53).

It would have been obvious to one skilled in the art at the time the invention was made to combine Johnson with Kapoor and Van Meter because of the advantages of conducting exception or error handling for network communications. Johnson states that the use of command status reply messages, including the messages for handling errors and exceptions, can simplify processing and reduce overall system cost while increasing design flexibility and versatility (e.g. Johnson, col. 5, lines 46-67). Being able to recognize errors and exceptions when communicated over a network can also reduce the amount of lost packets of communication data, or allow the user to resend the data if it is marked as lost or dropped. These are benefits in any computer network system.

45. As per claim 29, Kapoor and Van Meter teach the computer of claim 22, but fail to teach wherein the host computer does error handling as a consequence of the computer having received the second portion of the response.

However, in a similar art, Johnson teaches a network system with methods of correcting and notifying a network user of errors and exceptions which occurred in the processing of replies (e.g. Johnson, col. 14, lines 16-22, 36-53).

It would have been obvious to one skilled in the art at the time the invention was made to combine Johnson with Kapoor and Van Meter for similar reasons as stated above in regards to claim 28.

46. As per claim 32, Kapoor and Van Meter teach the computer of claim 31, wherein the network layer and transport layer are done on the subsequent portion, but fail to teach wherein the means includes error condition handling.

However, in a similar art, Johnson teaches a network system with methods of correcting and notifying a network user of errors and exceptions which occurred in the processing of replies (e.g. Johnson, col. 14, lines 16-22, 36-53).

It would have been obvious to one skilled in the art at the time the invention was made to combine Johnson with Kapoor and Van Meter for similar reasons as stated above in regards to claim 28.

47. As per claim 33, Kapoor and Van Meter teach the computer of claim 31, wherein the network layer and transport layer processing are done on the subsequent portion, but fail to teach wherein the means includes exception condition handling.

However, in a similar art, Johnson teaches a network system with methods of correcting and notifying a network user of errors and exceptions which occurred in the processing of replies (e.g. Johnson, col. 14, lines 16-22, 36-53).

It would have been obvious to one skilled in the art at the time the invention was made to combine Johnson with Kapoor and Van Meter for similar reasons as stated above in regards to claim 28.

48. As per claim 34, Kapoor and Van Meter teach the computer of claim 31, but fail to teach wherein the means sends a command status message to the host computer before said slow-path processing starts, the command status message including an identifier, the identifier being indicative of the ISCSI read request command.

However, in a similar art, Johnson teaches a system for controlling transmission of request replies and command status messages being sent from the host device after various procedures have been accomplished (e.g. Johnson, col. 6, lines 57-67; col. 7, lines 1-10; col. 10, lines 9-16).

It would have been obvious to one skilled in the art at the time the invention was made to combine Johnson with Kapoor and Van Meter because of the benefits of using a command status message when communicating over a computer network. Johnson states that the use of this type of command status reply messages can simplify processing and reduce overall system cost while increasing design flexibility and versatility (e.g. Johnson, col. 5, lines 46-67). These are benefits in any computer network system.

49. As per claim 35, Kapoor and Van Meter teach a host that is adapted for sending an ISCSI solicited read request and for receiving a response in return, a host computer that has a protocol stack, the protocol stack having an ISCSI layer (e.g. Kapoor, col. 1, lines 41-54; col. 2, lines 33-36; col. 3, lines 10-19; Van Meter, Abstract, Page 71), the host being adapted for processing the response such that a data portion of the response is placed into a memory on the host computer without the host computer doing any network or transport layer processing on the response (e.g. Kapoor, col. 2, lines 33-49; col. 6, lines 7-19; Fig. 2B, Van Meter, Abstract, Page 71).

Kapoor and Van Meter fail to teach a host bus adapter that is adapted for sending an ISCSI solicited read request, the host bus adapter being adapted for processing the response.

However, in a similar art, Johnson teaches the use of host bus adapters for controlling the transfer of data over SCSI buses (e.g. Johnson, col. 4, lines 18-30).

It would have been obvious to one skilled in the art at the time the invention was made to combine Johnson with Kapoor and Van Meter because of the advantages of using a host bus adapter to lessen the load on the CPU. A host bus adapter is designed for handling storage and retrieval tasks, which leaves the CPU more available to conduct other processing which cannot be performed by other devices or controllers. The use of a host bus adapter can therefore increase the speed and efficiency of the entire network, since less processing needs to be handled on the already burdened CPU. This is advantageous in any computer network system.

50. As per claim 36, Kapoor and Van Meter teach a method, comprising:

sending an ISCSI solicited read request (e.g. Kapoor, col. 1, lines 41-54; col. 2, lines 33-36; col. 3, lines 10-19; Van Meter, Abstract, Page 71);

receiving a response to the ISCSI read request (e.g. Kapoor, col. 1, lines 41-54; col. 2, lines 33-36; col. 3, lines 10-19; Van Meter, Abstract, Page 71); and

processing the response such that a data portion of the response is placed into a destination memory on the host computer without a protocol stack of the host computer doing any network layer processing on the response and without the host computer doing any transport layer processing on the response, the protocol stack of the host computer having an ISCSI layer (e.g. Kapoor, col. 2, lines 33-49; col. 6, lines 7-19; Fig. 2B, Van Meter, Abstract, Page 71).

Kapoor and Van Meter fail to teach the method comprising sending an ISCSI solicited read request from a host bus adapter; receiving onto the host bus adapter a response to the ISCSI solicited read request; and the host bus adapter processing the response.

However, in a similar art, Johnson teaches the use of host bus adapters for controlling the transfer of data over SCSI buses (e.g. Johnson, col. 4, lines 18-30).

It would have been obvious to one skilled in the art at the time the invention was made to combine Johnson with Kapoor and Van Meter for similar reasons as stated above in regards to claim 35.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wakeland (US 5,872,919) teaches a communication system with a packet processor that can be variably configured to be used with various communication protocols;

Bilansky et al. (US 5,88,225) teach a communication system which uses fast-path processing through a protocol stack to accelerate packet transfer through the network;

Hendel et al. (US 6,049,528) teach an Ethernet network which can fast-path process data packets to increase the rate of data flow through the network;

Teich et al. (US 6,490,631) teach a system for protocol acceleration to speed the passage of a data packet through a network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Kuiper whose telephone number is (571) 272-0953. The examiner can normally be reached on Monday through Friday, 8:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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13 January 2006

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